HAZARDOUS MATERIALS MANAGEMENT

NPS facilities use, store, and dispose of hazardous materials. These include, but are not limited to, fuels, paints, solvents (i.e., organic liquids used for cleaning and/or preservation), compressed gases, water treatment agents, fuel-gas mixtures for welding/cutting/brazing, copy toner, and laboratory chemicals. This EnviroCheck Sheet primarily describes regulatory and NPS requirements for storage of hazardous materials before they become waste. Additional information regarding requirements applicable to such materials is included in the Hazardous Communication EnviroCheck sheet.

NPS facilities using hazardous materials must minimize the potential for emergencies such as fire, explosions, personal exposures, hazardous reactions, contact of incompatible materials, and accidental spills. Proper storage methods also help minimize the impact of an emergency by limiting the extent of a fire, containing hazardous reactions, venting potential explosions, and minimizing spills.

Auditor's Guidelines:

Records to Review
- Chemical purchase orders
- Fire extinguisher inspection tags
- Material Safety Data Sheets
- Hazard Communications plan
- Inventory records

Features to Observe
- Underground storage tanks (USTs)
- Aboveground storage tanks (ASTs)
- Areas storing petroleum or non-petroleum oils
- Spill cleanup equipment
- Refueling areas
- Vehicle maintenance areas
- Paint shops
- Storage cabinets
- Storage rooms
- Cleaning supply closets
- Fire caches
- Solvent parts washers

Persons to Contact
- Park Superintendent
- Maintenance staff
- Fire management staff
- Natural resources staff

DEFINITIONS

Fire Area - An area of a building separated from the remainder of the building by construction having fire resistance of at least 1 hour (e.g., firewall) and having all doors and windows properly protected by an assembly having a fire resistance rating of at least 1 hour.

Flashpoint - The minimum temperature at which a liquid gives off vapor to form an ignitable mixture with air near the surface of the liquid.

Flammable and Combustible Liquids:
1. Flammable - Class I - Liquid having a flashpoint below 100F. Common examples include gasoline and some solvents, thinners, and spray paints.
   - Class IA - Liquids having flashpoints below 73F and having a boiling point below 100F.

- Class IB - Liquids having flashpoints below 73F and having a boiling point at or above 100F.
- Class IC - Liquids having flashpoints at or above 73F and below 100F.

2. Combustible - Liquids having a flashpoint of 100F or greater, but below 200F.
   - Class II - Liquids having a flashpoint at or above 100F but below 140F. Examples include kerosene, diesel fuel, and No. 2 fuel oil.
   - Class III - Class IIIA liquids have a flashpoint above 140F but below 200F. A common example is No. 6 fuel oil. Class IIIB liquids have a flashpoint of 200F or greater; these liquids are not combustible.

Hazardous Materials and Chemicals: The Occupational Safety and Health Administration (OSHA) defines a *hazardous chemical* as a chemical that is a physical or a health hazard in Title 29 of the Code of Federal Regulations, Section 1910.1200(c) [29 CFR 1910.1200(c)]. The Department of Transportation defines *hazardous materials* as substances or materials in a quantity or form that may pose an unreasonable risk to human health and safety, or property when stored, transported, or used. The material may be in a solid, semi-solid, liquid or a gaseous state.

Health Hazard: A chemical for which there is statistically significant evidence based on at least one study that acute or chronic health effects may occur to exposed employees. This includes carcinogens, toxic agents, reproductive toxins, liver toxins, kidney toxins, nervous system toxins, irritants, corrosives, sensitizers, agents which act on the formation of blood cells, and agents which cause damage to the lungs, skin, eyes, or mucus membranes [29 CFR 1910.1200(c)].

Important building: As used by OSHA and the National Fire Protection Association (NFPA), this term does not have a singular meaning. For NFPA, value is the basic criteria for defining an important building. Value can range from the value of the building's contents to its importance in firefighting. OSHA defines "important building" as any building where employees may be exposed to potential or actual hazards.

Physical Hazard: A chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive [29 CFR 1910.1200(c)].

Solid and Hazardous Waste: Solid wastes are materials that have been discarded or used, or are no longer intended for use. Solid wastes include liquid or contained gaseous materials resulting from NPS, visitor, commercial, and community activities. Hazardous wastes are a type of solid waste. Hazardous materials that also meet the definition of a solid waste are subject to both OSHA hazardous material storage and EPA hazardous waste requirements. (See Hazardous Waste Management EnviroCheck Sheet.)

LEGAL REQUIREMENTS

General Hazardous Materials Regulations

- OSHA regulates the handling of **compressed gases** in 29 CFR 1910.101, 29 CFR 1910.110, and 29 CFR 1910.253. 29 CFR 1910.101 includes the following specifications:
  - "Inspection of compressed gas cylinders." Through visual inspection, park staff must determine that compressed gas cylinders are in good condition. Visual and other inspections shall be conducted as prescribed in the Hazardous Materials Regulations of the Department of Transportation (49 CFR parts 171-179 and 14 CFR part 103). Where those regulations are not applicable, visual and other inspections shall be conducted in accordance with Compressed Gas Association Pamphlets C-6-1968 and C-8-1962, which is incorporated by reference.

  - "Compressed gases." The handling, storage, and utilization of all compressed gases in cylinders, portable tanks, rail tankcars, or motor vehicle cargo tanks shall be in accordance with Compressed Gas Association Pamphlet P-1-1965, which is incorporated by reference.
  - "Safety relief devices for compressed gas containers." Compressed gas cylinders, portable tanks, and cargo tanks shall have pressure relief devices installed and maintained in accordance with Compressed Gas Association Pamphlets S-1.1-1963 and 1965 addenda and S-1.2-1963, which is incorporated by reference.
- OSHA regulates the handling of **flammable and combustible** liquids in 29 CFR 1910.106.
- OSHA regulates **container labeling** in 29 CFR 1200(f). (See Hazard Communication and Respiratory Protection EnviroCheck Sheets.)
- Department of Transportation (DOT) regulates the transportation of hazardous materials at 49 CFR parts 171-179 and 14 CFR part 103.
- Most state and local jurisdictions address hazardous material storage through the use of building codes, which can include BOCA (Building Officials and Code Administrator) Codes, NFPA (National Fire Protection Association) Codes, and UBCs (Uniform Building Codes). To be thorough, reviewers should be familiar with the requirements contained in state and local codes.

COMPLIANCE REQUIREMENTS

Compressed Gases (29 CFR 1910.101, 29 CFR 1910.110, and 29 CFR 1910.253)

General Requirements

- Cylinders must be labeled indicating the exact contents. They should also be secured in an upright position, away from heat sources, and in such a manner to avoid being damaged.
- Cylinders must be stored so that they do not block exits, obstruct aisles, or otherwise interfere with means of egress.
- Full and partially full cylinders must be stored separately from empty cylinders.
- Cylinders must be stored in groups according to the type of gas that they contain.
- Removable caps must remain secured on tanks except when the tank is in use.
- Flammable and oxygen-containing compressed gases (e.g., oxygen and acetylene for oxy-acetylene cutting) must be separated by at least 20 feet, or by a five-foot high fire resistant barrier, whilst being stored. (This does not apply to in-use welding gases.)
- Incompatibles must be stored separately (e.g., oxygen and propane should be stored separately).
- All compressed gas cylinders must be protected from weather elements.

Flammable and Combustible Liquids (29 CFR 1910.106)

General Requirements

- All portable containers for flammable and combustible liquids must be approved by a nationally recognized testing agency (e.g., Underwriters Laboratories) and not modified to defeat safety features.
- Flammable liquid storage cabinets are to contain a maximum of 60 gallons of Class I or II liquids and 120 gallons of Class IIIA liquids regardless of the size of the cabinet (see definitions on previous page).

- Flammable and combustible liquid storage rooms (which contain liquids greater than the limits described above) must be properly designed and equipped. 29 CFR 1910.106 and NFPA 30 describes key design criteria, some of which include the following:
  - Construction is with two-hour fire resistive materials.
  - Doors are positive-latched with self-closing devices, and at least 1.5-hour fire resistive.
  - Ventilation is provided at the rate of one cubic foot per hour per square foot of floor space, and exhaust ducts are within 12 inches of the floor.
  - Switches controlling ventilation system components are located outside the room.
  - Electrical wiring and fixtures are appropriate for the liquids present.
  - For materials that are capable of exploding, appropriate explosion venting means is provided.
- Containers of flammable/combustible liquids can be stored outside if no more than 1,100 gallons of liquid are stored adjacent to the building. More than 1,100 gallons can be stored only if there are at least ten feet between the buildings and the nearest flammable container. In addition:
  - The storage area must be graded to divert spills away from buildings or be surrounded by a curb;
  - The storage must be protected against tampering and kept free of waste and other combustible materials (e.g., wood, paper);
  - All containers labels must bear contents and hazard markings; and
  - The total quantity and arrangement of liquids outside the building complies with requirements in 29 CFR 1910.106(d)(5) in terms of quantities of Class I, II or III liquids, distances between storage areas and distances to property lines, streets, alleys, and public ways.
- All connections of drums and piping systems are vapor-and liquid-tight.
- When liquids are dispensed from larger containers to secondary containers, only approved pumps designed for the purpose are used. When gravity is used, the dispensing valve must automatically close when released.
- All containers must be closed when not in use to prevent loss by evaporation, and to prevent the potential for personal exposure to hazardous levels of chemicals. Additionally, evaporation is considered an unacceptable method of waste disposal.
- Conductive containers used for dispensing flammable liquids must be grounded to avoid the build-up of static electricity, which could be an ignition source.
- Containers used for dispensing liquids must be vented to prevent the build-up of pressure or a vacuum.
- For flammable/combustible storage areas, at least one portable fire extinguisher with a rating of not less than 12-B units must be located outside of, but not more than ten feet from, the door opening into any room used for storage. Additionally, at least one portable fire extinguisher with a rating of not less than 12-B units must be located not less than ten feet, nor more than 25 feet from any Class I or II liquid storage area located outside of a storage room, but inside of a building.

Requirements Applicable to Tank Storage (29 CFR 1910.106(b))

- Tanks must be built of steel or other materials that are designed to specifications embodying principles recognized as good engineering design for the material used.
- Metal tanks must be welded, riveted, and caulked, brazed, or bolted, or constructed by use of a combination of these methods. Filler metal used in brazing must be nonferrous metal or an alloy having a melting point above 1000F and below that of the metal joined.
- Tanks designed for underground service not exceeding 2,500 gallons capacity may be used aboveground.
- Liquefied petroleum (LP) tanks must be routinely inspected for damage, wear, and proper operation.
- "No Smoking" signs must be posted near LP tanks.
- LP tanks must be protected from vehicular damage.

Requirements Applicable to Container and Portable Tank Storage (29 CFR 1910.106(d))

- Aisles must be kept clear of obstruction, have adequate lighting provided, and have good housekeeping practiced at all times.
- All chemical storage areas must be protected from weather elements.
- Incompatible chemicals should be stored separately. Examples of incompatible materials include alkaline cleaners and battery acid, fertilizer and dormant oil, chlorine and caustic chemicals.
- For materials that are capable of exploding, appropriate explosion venting must be provided (e.g., blow-out doors or walls).
- Waste chemicals should be stored separately from chemical products.

Requirements Applicable to Liquid Storage Cabinets (29 CFR 1910.106(d)(3))
Cabinets storing flammable and combustible liquids must be fire resistant, and designed and constructed to limit the internal temperature to not more than 325F when subjected to a ten-minute fire test (using the standard time-temperature curve as set forth in Standard Methods of Fire Tests of Building Construction and Materials, NFPA 251-1969.) Cabinets shall be labeled in conspicuous lettering, "Flammable - Keep Fire Away."

Cabinets constructed in the following manner shall be deemed to be in compliance:

- **Metal cabinets** -The bottom, top, door, and sides of cabinet shall be at least No. 18 gage sheet iron and double-walled with 1 1/2 - inch air space. Joints shall be riveted, welded or made tight by some equally effective means. The door shall be provided with a three-point lock, and the doorsill shall be raised at least 2 inches above the bottom of the cabinet.
- **Wooden cabinets** - The bottom, sides, and top shall be constructed of an approved grade of plywood at least 1 inch in thickness, which shall not break down or delaminate under fire conditions. All joints shall be rabbetted and shall be fastened in two directions with flathead woodscrews. When more than one door is used, there shall be a rabbetted overlap of not less than 1 inch. Hinges shall be mounted in such a manner as not to lose their holding capacity due to loosening or burning out of the screws when subjected to the fire test.

Unusual or Questionable Hazardous Materials

Unusual hazardous materials such as unknown chemicals and very old materials can be extremely hazardous if the hazard potential is not known. Questionable materials can pose great risks, including injury and property damage, if highly hazardous characteristics are not recognized and appropriately managed. Such materials must be handled on a case-by-case basis, focusing on the goal of promptly disposing of the material. Some key precautions include the following:

- Staff should only handle hazardous materials after they have received Hazard Communication Training specific to that material (see Hazard Communication EnviroCheck Sheet);
- If in doubt, do not handle the material; call an NPS or outside expert on hazardous materials;
- Secure the area from public access and the material from inadvertent damage;
- For potentially explosive materials such as old decomposed chemicals, obtain bomb disposal assistance from the local municipal bomb squad, National Guard, or active/reserve military explosive ordinance disposal personnel.

FOR MORE INFORMATION

- Compressed Gas Association (CGA), <http://www.cganet.com/>, publications on the safe handling of compressed gases are available online.
- NFPA National Fire Codes.
- OSHA Hotline: Referral Service for OSHA programs, 1-800-321-6742.
- OSHA Internet Site: Information on OSHA organization and programs, <http://www.osha.gov/index.html>
- OSHA's Small Business Outreach Training Program: Flammable and Combustible Liquid, <http://www.osha-slc.gov/SLTC/smallbusiness/sec8.html>.

*The following questions address selected regulations related to hazardous materials storage. They are not intended to be a comprehensive audit of a park's operations related to the Occupational Safety and Health Standards for Hazardous Materials. Instead, the questions focus on issues of relevance to an **environmental** audit, and in particular, focus on instances where improper storage and handling of hazardous materials may lead to a **release** of those materials or to the unnecessary generation of hazardous **waste**.*

	Check List Item	Priority	Notes
	Flammable and Combustible Liquids *Unless noted otherwise, checklist questions 1-38 address regulatory requirements applicable to the storage of **flammable and combustible liquids** under 29 CFR 1910.106.*		
	Tank Storage		
1.	Tanks used to stored flammable and combustible liquids are built of steel *except* when: • Installed underground; • Steel is incompatible with the liquid stored; or • They are designed to specifications embodying principles recognized as good engineering design for the material used. [29 CFR 1910.106(b)(1)(i)]	2	
2.	The distance between any two flammable or combustible liquid aboveground storage tanks located outside is not less than 3 feet. [29 CFR 1910.106(b)(2)(ii)(a)]	1	
3.	In locations where flammable vapors may be present, precautions have been taken to prevent ignition by eliminating or controlling sources of ignition (e.g., open flames, lightning, smoking, cutting and welding, hot surfaces, frictional heat, sparks). [29 CFR 1910.106(b)(6)] [NOTE: Auditor will have to determine what constitutes "precautions" being taken to prevent ignition. For instance, it will probably be necessary to conspicuously post "No Smoking" signs in the area.]	1	
	Containers & Portable Tank Storage *Questions 4-25 apply only to the storage of flammable or combustible liquids in **drums** or other **containers** (including flammable aerosols) under 60 gallons individual capacity and **portable tanks** not exceeding 660 gallons individual capacity. These questions do not apply to flammable or combustible paints, oils, varnishes, and similar mixtures used for painting or maintenance when not kept for a period in excess of **30 days.***		
	Design, Construction, and Capacity of Containers		
4.	All portable containers for flammable and combustible liquids are approved by a nationally recognized testing agency (e.g., Underwriters Laboratories), and have not been modified to defeat safety features. [29 CFR 1910.106 (d)(2)(i)]	2	
5.	Containers used for dispensing liquids are vented to prevent the build-up of pressure or a vacuum. [29 CFR 1910.106(d)(2)(ii)]	2	

<table>
<tr><th colspan="2">Check List Item</th><th>Priority</th><th>Notes</th></tr>
<tr><td>6.</td><td>Flammable and combustible liquids are not stored in portable containers that exceed the maximum allowable size:

<table>
<tr><th rowspan="2">Container type</th><th colspan="3">Flammable liquids</th><th colspan="2">Combustible liquids</th></tr>
<tr><th>Class IA</th><th>Class IB</th><th>Class IC</th><th>Class II</th><th>Class III</th></tr>
<tr><td>Glass or approved plastic.....</td><td>1 pt</td><td>1 qt</td><td>1 gal</td><td>1 gal</td><td>1 gal.</td></tr>
<tr><td>Metal (other than DOT drums).....</td><td>1 gal</td><td>5 gal</td><td>5 gal</td><td>5 gal</td><td>5 gal.</td></tr>
<tr><td>Safety cans.....</td><td>2 gal</td><td>5 gal</td><td>5 gal</td><td>5 gal</td><td>5 gal.</td></tr>
<tr><td>Metal drums (DOT specifications)..</td><td>60 gal</td><td>60 gal</td><td>60 gal</td><td>60 gal</td><td>60 gal.</td></tr>
<tr><td>Approved portable tanks.....</td><td>660 gal</td><td>660 gal</td><td>660 gal</td><td>660 gal</td><td>660 gal.</td></tr>
</table>
NOTE: Container exemptions: [a] Medicines, beverages, foodstuffs, cosmetics, and other common consumer items, when packaged according to commonly accepted practices, shall be exempt from the requirements of 1910.106(d)(2)(i) and (ii).

[29 CFR 1910.106 (d)(2)(iii)]</td><td>2</td><td></td></tr>
<tr><td colspan="4">Design, Construction, and Capacity of Storage Cabinets</td></tr>
<tr><td>7.</td><td>Not more than 60 gallons of Class I or Class II liquids, nor more than 120 gallons of Class III liquids are stored in a storage cabinet. [29 CFR 1910.106 (d)(3)(i)]</td><td>2</td><td></td></tr>
<tr><td>8.</td><td>Cabinets storing flammable and combustible liquids must be fire resistant and labeled in conspicuous lettering, “Flammable - Keep Fire Away.” [1910.106(d)(3)(ii)]</td><td>2</td><td></td></tr>
<tr><td>9.</td><td>Materials which are incompatible are not to be stored in the same cabinet, in accordance with the following guidelines:
• Cabinets storing flammable liquids should contain flammable and combustible liquids only. Compatible solvents such as methylene chloride and 1,1,1-trichloroethane are allowed.
• Incompatible acids should be stored separately from each other (i.e., nitric acid, perchloric acid, acetic acid).
• Acids and bases must be stored separately.
• All cabinets that contain hazardous materials, whether approved or not, must be labeled on the outside as to its contents. Letters must be at least 1 inch high.
[Uniform Fire Code, UFC 80.301(n)]</td><td>1</td><td></td></tr>
<tr><td colspan="4">Design, Construction, and Capacity of Inside Storage Rooms</td></tr>
<tr><td>10.</td><td>Inside storage rooms storing flammable and combustible liquids are fire-resistive and:
• Have floors with at least 4-inches raised sills or ramps, floors that are depressed 4-inches below the surrounding floor or have an open-grated trench inside of the room which drains to a safe location;
• Have approved, self-closing fire doors at all openings; and
• Are liquid-tight where the walls join the floor.
[CFR 1910.106 (d)(4)(i)]</td><td>2</td><td></td></tr>
</table>

	Check List Item	Priority	Notes
11.	Inside storage rooms comply with the following limits: Fire protection(1) provided | Fire resistance | Maximum size | Total Allowable quantities (gals./sq. ft./ floor area) Yes | 2 hours | 500 sq. ft. | 10 No | 2 hours | 500 sq. ft. | 5 Yes | 1 hour | 150 sq. ft. | 4 No | 1 hour | 150 sq. ft. | 2 Footnote(1) Fire protection system shall be sprinkler, water spray, carbon dioxide, or other system. [29 CFR 1910.106 (d)(4)(ii)]	2	
12.	Every inside-storage room has a gravity or a mechanical exhaust ventilation system. [29 CFR 1910.106 (d)(4)(iv)	2	
13.	In every inside-storage room, there is one clear aisle at least 3 feet wide. [29 CFR 1910.106 (d)(4)(v)]	2	
14.	The NPS facility does not have more than three storage cabinets in any one fire area (a total of 180 gallons in one fire area). NFPA 30, 4-3.2	2	
	Storage of Flammable and Combustible Liquids Inside Buildings		
15.	Flammable or combustible liquids are not stored in a way that limits the use of exits, stairways, or areas normally used for the safe egress of people. [29 CFR 1910.106 (d)(5)(i)]	1	
16.	Flammable or combustible liquids in containers or portable tanks are not stored in office buildings, except where they are required for the maintenance and operation of the building and operation of equipment. Those chemicals are kept in closed metal containers stored in a storage cabinet, or in safety cans, or in an inside-storage room not having a door that opens into that portion of the building used by the public. [29 CFR 1910.106 (d)(5)(iii)]	2	

	Check List Item	Priority	Notes
	Storage Outside Buildings		
17.	The total quantity and arrangement of liquids stored outside the building complies with the table below in terms of quantities of Class I, II or III liquids, distance between storage areas, and distances to property lines and streets, alleys and public ways. [29 CFR 1910.106 (d)(6)(i)]	2	

1-Class	2-Maximum per pile	3-Distance between piles	4-Distance to property line that can be built upon	5-Distance to street, alley, public way
	gallons	feet	feet	feet
IA	1,100	5	20	10
IB	2,200	5	20	10
IC	4,400	5	20	10
II	8,800	5	10	5
III	22,000	5	10	5

NOTE 1: When 2 or more classes of materials are stored in a single pile, the maximum gallonage in that pile shall be the smallest of the 2 or more separate gallonages.

NOTE 2: Within 200 ft. of each container, there shall be a 12 ft. wide access way to permit approach of fire control apparatus.

NOTE 3: The distances listed apply to properties that have protection for exposures as defined. If there are exposures, and such protection for exposures does not exist, the distances in column 4 shall be doubled.

NOTE 4: When total quantity stored does not exceed 50 percent of maximum per pile, the distances in columns 4 and 5 may be reduced 50 percent, but not less than 3 ft.

18.	If storing flammable materials outside, the storage area is graded in a manner to divert possible spills away from buildings, or other exposures, or is surrounded by a curb at least 6 inches high. [29 CFR 1910.106 (d)(6)(iii)]	2	
19.	If storing flammable materials outside, the storage area is protected against tampering, or trespassers where necessary, and kept free of weeds, debris and other combustible materials not necessary to storage. [29 CFR 1910.106 (d)(6)(iv)]	2	
	Fire control		
20.	Suitable fire control devices, such as a small hose or portable fire extinguishers, are available at locations where flammable or combustible liquids are stored. [29 CFR 1910.106(d)(7)(i)]	2	
21.	At least one portable fire extinguisher having a rating of not less than 12-B units is located outside of, but not more than 10 feet from, the door opening into any room used for storage. [29 CFR 1910.106(d)(7)(i)(a)]	2	
22.	At least one portable fire extinguisher having a rating of not less than 12-B units is located not less than 10 feet, nor more than 25 feet, from any Class I or Class II liquid storage area located outside of a storage room but inside a building. [29 CFR 1910.106(d)(7)(i)(b)]	2	

	Check List Item	Priority	Notes
23.	Open flames and smoking are not permitted in flammable or combustible liquid storage areas. [29 CFR 1910.106 (d)(7)(iii)]	1	
24.	To ensure that smoking does not occur, "No Smoking" signs are prominently posted in flammable or combustible liquid storage areas. [BMP]	3	
25.	Materials that react with water are not stored in the same room with flammable or combustible liquids. [29 CFR 1910.106 (d)(7)(iv)]	1	
	Incidental Storage or Use of Flammable and Combustible Liquids *Questions 26-36 are applicable to areas of the park in which hazardous materials are used incidentally. Note, the regulatory citations included in those questions deal with use of flammable and combustible liquids in "industrial plants." Since areas such as maintenance shops are not specifically defined under any unique OSHA or NFPA requirement, NPS has adopted the requirements applicable to industrial plants when managing chemicals in the areas in which they are used. Since those items are not enforceable by OSHA, they are considered BMPs related to the applicable regulatory citation.*		
	Container Storage		
26.	Flammable and combustible liquids are stored in tanks or closed containers. [BMP related to 29 CFR 1910.106 (e)(2)(ii)]	3	
27.	The quantity of liquid located *outside* of an inside flammable storage room or cabinet in a building does not exceed: • 25 gallons of Class IA liquids; • 120 gallons of Class IB, IC, II or III liquids; or • 660 gallons of Class IB, IC, II or III liquids in a single portable tank. (It is further recommended as a BMP to store no greater than 10 gallons of any flammable or combustible liquids outside a flammable storage cabinet or room.) [BMP related to 29 CFR 1910.106 (e)(2)(ii)(b)]	3	
	Handling Liquids at Point of Final Use		
28.	Flammable liquids are kept covered when not in use. [BMP related to 29 CFR 1910.106(e)(2)(iv)(a)]	3	
29.	Where flammable or combustible liquids are used or handled, except in closed containers, means shall be provided to dispose promptly and safely of leakage or spills. [BMP related to 29 CFR 1910.106(e)(2)(iv)(b)]	3	
30.	Flammable and combustible liquids are drawn from or transferred into containers within a building only through a closed piping system, from safety cans, by means of a device drawing through the top, or by gravity through an approved self-closing valve (such liquids are not transferred by air pressure). [BMP related to 29 CFR 1910.106 (e)(2)(iv)(d)]	3	
	Sources of Ignition		
31.	Adequate precautions are taken to prevent the ignition of flammable vapors. Sources of ignition include but are not limited to open flames; lightning; smoking; cutting and welding; hot surfaces; frictional heat; static, electrical, and mechanical sparks; spontaneous ignition, including heat-producing chemical reactions; and radiant heat. [BMP related to 29 CFR 1910.106 (e)(6)(i)]	3	
32.	Class I liquids (gasoline) are not dispensed into containers unless the nozzle and container are electrically interconnected (grounded). [BMP related to 29 CFR 1910.106 (e)(6)(ii)]	3	

	Check List Item	Priority	Notes
	Housekeeping		
33.	Maintenance and operating practices are in accordance with established procedures to tend to control leakage and prevent the accidental escape of flammable or combustible liquids. Spills are cleaned up promptly. [BMP related to 29 CFR 1910.106 (e)(9)(i)]	3	
34.	Adequate aisle space is maintained to allow unobstructed movement of personnel and so that fire protection equipment can be brought to bear on any part of flammable or combustible liquid storage, use, or any unit physical operation. [BMP related to 29 CFR 1910.106 (e)(9)(ii)]	3	
35.	Combustible waste materials and residues in a building are kept to a minimum, stored in covered metal containers, and disposed of daily (in a hazardous waste storage area if applicable). [BMP related to 29 CFR 1910.106 (e)(9)(iii)]	3	
36.	The ground area around buildings is free of weeds, trash, or other unnecessary combustible materials. [BMP related to 29 CFR 1910.106 (e)(9)(iv)]	3	
	Bulk Chemicals *Questions 37-38 apply to areas of the facility where flammable or combustible liquids are received by tank vessel, pipelines, tank car, or tank vehicle, and are stored or blended in bulk for the purpose of distribution.*		
37.	Valves used for the final control for filling vehicles or other containers are the self-closing type and manually held open except where automatic means are provided for shutting off the flow when the vehicle is full or after filling of a preset amount. [29 CFR 1910.106(f)(3)(iii)]	2	
38.	Flammable liquids are not handled, drawn, or dispensed where flammable vapors may reach a source of ignition. Smoking is prohibited except in designated localities. "No Smoking" signs are conspicuously posted where hazard from flammable liquid vapors is normally present. [29 CFR 1910.106 (f)(6)]	1	
	Liquefied Petroleum Gas *Questions 39-42 apply to storage and handling requirements for liquefied petroleum gases.*		
39.	Containers of liquefied petroleum gas (LP-Gas) are located outside of buildings, except under one or more of the following situations: • In buildings used exclusively for container charging, vaporization pressure reduction, gas mixing, gas manufacturing, or distribution; • When portable use is necessary; • When LP-Gas fuel is used for stationary or portable engines; • When LP-Gas fuel is used for industrial trucks; • When LP-Gas fuel is used for garaged vehicles; or • When containers are awaiting use or resale. [29 CFR 1910.110(b)(6)(i)]	2	

	Check List Item	Priority	Notes
40.	Individual LP-Gas containers are located, with respect to the nearest important building or group of buildings, in accordance with the following restrictions:	2	

Water capacity per container	Minimum distances: Containers: Underground	Minimum distances: Containers: Above-ground	Minimum distances: Between above-ground containers
Less than 125 gals(1)...	10 feet....	None.....	None.
125 to 250 gals.....	10 feet....	10 feet.....	None.
251 to 500 gals.....	10 feet....	10 feet.....	3 feet.
501 to 2,000 gals.....	25 feet(2).	25 feet(2)..	3 feet.
2,001 to 30,000 gals....	50 feet....	50 feet.....	5 feet.
30,001 to 70,000 gals...	50 feet....	75 feet(3)..	
70,001 to 90,000 gals...	50 feet....	100 feet(3).	

Footnote(1) If the aggregate water capacity of a multi-container installation at a consumer site is 501 gallons or greater, the minimum distance shall comply with the appropriate portion of this table, applying the aggregate capacity rather than the capacity per container. If more than one installation is made, each installation shall be separated from another installation by at least 25 feet. Do not apply the MINIMUM DISTANCES BETWEEN ABOVE-GROUND CONTAINERS to such installations.
Footnote(2) The above distance requirements may be reduced to not less than 10 feet for a single container of 1,200 gallons water capacity or less, providing such a container is at least 25 feet from any other LP-Gas container of more than 125 gallons water capacity.
Footnote(3) 1/4 of sum of diameters of adjacent containers.

[29 CFR 1910.110(b)(6)(ii)]

Storage of Containers Awaiting Use

Questions 41-42 apply to the storage of portable containers not in excess of 1,000 pounds water capacity, filled or partially filled, at user location but not connected for use, or in storage for resale.

41.	If LP-Gas is stored inside, in areas not frequented by the public, the amount does not exceed 300 lbs. (approximately 2,550 ft in vapor form). [29 CFR 1910.110(f)(4)]	2	

	Check List Item	Priority	Notes
42.	LP-Gas storage outside of buildings shall be located in accordance with the following table with respect to the nearest important building or group of buildings or busy thoroughfares: Quantity of LP-Gas Stored | Distance 500 pounds or less | 0 501 to 2,500 pounds | (1)0 2,501 to 6,000 pounds | 10 feet 6,001 to 10,000 pounds | 20 feet Over 10,000 pounds | 25 feet Footnote(1) Container or containers shall be at least 10 feet from any building on adjoining property, any sidewalk, or any of the exposures described in 1910.110(f)(6)(i) (c) or (d) of this paragraph. The containers must also be in a suitable enclosure or otherwise protected against tampering. [29 CFR 1910.110 (f)(6)]	2	
	Storage and Handling of Compressed Gases		
43.	It can be determined that compressed gas cylinders stored at the Park comply with Compressed Gas Association (CGA) Pamphlets P-1-1965, C-6-1968 and C-8-1962 (or more current standards applicable to the Park's operations). [BMP]	3	
44.	Cylinders are secured to prevent them from tipping over. [29 CFR 1910.101(b) in accordance with Compressed Gas Association Pamphlet P-1-1965.]	2	
45.	Cylinder valves are kept closed with the cap installed when not in use. [29 CFR 1910.101(b) in accordance with Compressed Gas Association Pamphlet P-1-1965.]	2	
46.	Cylinders are stored in a cool, dry, well-ventilated fire-resistant area. [29 CFR 1910.101(b) in accordance with Compressed Gas Association Pamphlet P-1-1965.]	2	
	Oxygen-Fuel Gas Welding and Cutting		
47.	Oxygen cylinders are: • Not stored near highly combustible material, especially oil and grease. • Not stored near reserve stocks of carbide and acetylene or other fuel-gas cylinders. • Not stored near any other substance likely to cause or accelerate fire; or in an acetylene generator compartment. • Separated from fuel-gas cylinders or combustible materials (especially oil or grease) by a minimum distance of 20 ft (6.1 m) or by a noncombustible barrier at least 5 ft (1.5 m) high having a fire-resistance rating of at least one-half hour. [29 CFR 1910.253 (b)(4)]	2	